CHAPTER-1
INTRODUCTION

In the present day world, while people have developed newer, yet pathological ways to deal with their stresses, one of the most utilized coping strategy used since times immemorial has been intoxication. This trend has been observed globally as well as in India. The alarming scenario in contemporary times creates uneasiness and need for assertive policy and execution.

Substance use disorders are believed to have become widespread in the State of Punjab. Huge burden can be expected on the individual, family, and larger society because of the problem of substance abuse, in terms of physical and mental health impairment, lowering of quality of life, financial hardships, lost productivity, accidents and crimes, etc. (Basu & Avasthi, 2015).

The use and abuse of various legal and illegal psychoactive substances and its negative consequences is increasingly becoming a major public health concern with rebound on the individuals, their families, and society. Negative consequences include increased school drop-outs, poor scholastic achievements, promiscuity, early pregnancy, increased criminality and spread of HIV infection. An increased correlation with depression, suicide and antisocial personality has also been reported and early initiation is often associated with poor prognosis and a life-long pattern of deception and irresponsible behavior.

The increasing prevalence of drug abuse among adolescents and young individuals as well as harmful and destructive individual, familial, social, occupational, financial, ethical and cultural effects of chronic and poor prognosis necessitate identification of effective factors in both prevention and treatment of addiction (McLellan, Chalk, & Bartlett, 2007).

The word drug is derived from the fourteenth-century French word ‘drogue’, meaning a dry substance—most pharmaceuticals at that time were prepared from dried herbs (Palfai & Jankiewicz, 1991). There is no completely satisfying way of delineating what is and what is not a drug—for example, the differences between water, vitamin supplements, and penicillin (Goode, 1989). Therefore, some feel it
appropriate to refer to it as chemical or substance use. Imprecision in the use of the word drug has had serious social consequences. Because alcohol is excluded from most people’s definition of what is a drug, the public is conditioned to regard a martini as something fundamentally different from a marijuana cigarette, a barbiturate capsule, or a bag of heroin. Similarly, because the meaning of the word drug differs so widely in therapeutic and social contexts, the public is conditioned to believe that “street drugs” act according to entirely different principles than “medical drugs,” alcohol, and nicotine do, with the result that the risks of the former are exaggerated and the risks of the latter are underrated (Uelmen & Haddox, 1983). “In contemporary society, the word drug has two connotations—one positive, explaining its crucial role in medicine; and one negative, reflecting, not the natural and synthetic makeup of these chemicals, but the self-destructive and socially deleterious patterns of misuse” (Jones, Shainberg, & Byer, 1979). Common sense use of word drug refers to substances that have mood altering, psychoactive effects. This definition includes caffeine, nicotine, and alcohol, as well as illegal chemicals such as marijuana, cocaine, and heroin. Drug addiction is defined by the National Institute on Drug Abuse as “a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences” (Erickson, 2007). In contrast, drug abuse implies the misuse of certain substances—it is a moral, not a scientific term: “An unstandardized, value-laden, and highly relative term used with a great deal of imprecision and confusion, generally implying drug use that is excessive, dangerous, or undesirable to the individual or community and that ought to be modified” (Nelson, Helen, Mollie, & Thomas, 1982). Drug abuse “implies willful, improper use due to an underlying disorder or a quest for hedonistic or immoral pleasure” (Miller, 1995).

Numerous definitions of drug abuse reflect social values, not scientific insight. “One reason for the prevalence of definitions of drug abuse that are neither logical nor scientific is the strength of Puritan moralism in American culture which frowns on the pleasure and recreation provided by intoxicants” (Zinberg, 1984). Such definitions typically refer to “use of mood modifying chemicals outside of medical supervision, and in a manner, which is harmful to the person and the community” (American Social Health Association, 1972). Other definitions, such as those offered by the
World Health Organization and the American Medical Association, include references to physical and/or psychological dependence (Zinberg, 1984). The Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV), published by the American Psychiatric Association (1994), refers to substance abuse as a “maladaptive pattern of substance use manifested by recurrent and significant adverse consequences related to the repeated use of substances. There may be repeated failure to fulfill major role obligations, repeated use in situations in which it is physically hazardous (such as driving while intoxicated), multiple legal problems, and recurrent social and interpersonal problems.”

In fact, drug abuse may be defined from a number of perspectives: “The legal definition equates drug use with the mere act of using a proscribed drug or using a drug under proscribed conditions. The moral definition is similar, but greater emphasis is placed on the motivation or purpose for which the drug is used. The medical model opposes unsupervised usage but emphasizes the physical and mental consequences for the user, and the social definition stresses social responsibility and adverse effects on others” (Balter, 1974).

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**Major Categories of Drugs based on their Effect on Central Nervous System**

The psychoactive substances can be categorized into three broad categories according to their primary effect on the central nervous system: depressants, stimulants and hallucinogens. A drug can have at least three different names: chemical, generic, and trade; and drugs that have a legitimate medical use may be marketed under a variety of trade names (Abadinsky, 2010).
1. **Depressants** depress the central nervous system (CNS) and can reduce pain. The most frequently used drug in this category is alcohol; the most frequently used illegal drug is the opiate derivative heroin. Other depressants, all of which have some medical use, include morphine, codeine, methadone, oxycodone, barbiturates, and tranquilizers. These substances can cause physical and psychological dependence, a craving and withdrawal; which results in physical and psychological stress. Opiate derivatives (heroin, morphine, and codeine) and opium-like drugs such as methadone and oxycodone are often referred to as narcotics (Abadinsky, 2010).

2. **Stimulants** elevate mood and produce feelings of wellbeing by stimulating the CNS. The most frequently used drugs in this category are caffeine and nicotine; the most frequently used illegal stimulant is cocaine, which, along with amphetamines, has some limited medical use (Abadinsky, 2010).

3. **Hallucinogens** alter perceptual functions. The term hallucinogen rather than, for example, psychoactive or psychedelic, is a value-laden one. The most frequently used hallucinogens are LSD (lysergic acid diethylamide) and PCP (phencyclidine); both are produced chemically, and neither has a legitimate medical use. There are also organic hallucinogens, such as mescaline, which is found in the peyote cactus, and salvia, a mint-family plant native to Mexico (Abadinsky, 2010).

   There are a variety of chemicals that have a combination of these characteristics or are commonly grouped according to a nonchemical characteristic, such as “club drugs,” a term used to characterize psychoactive substances associated with dance parties or raves, in particular MDMA, known as Ecstasy.

4. **Cannabis** (e.g., marijuana and hashish) exhibits some of the characteristics of hallucinogens, depressants, and even stimulants (Abadinsky, 2010).

5. **Inhalants** include a variety of readily available products routinely kept in the home, such as glue, paint thinner, hair spray, and nail polish remover. They produce vapors that, when inhaled, can cause a psychoactive response (Abadinsky, 2010).
Historical Perspective of Opioid Use, Abuse & Dependence

Since ancient times, drugs have been utilized for treatment of patients and for ritualistic ceremonies. The Greek author, Homer had expounded on opium in his great epic 'The Iliad' in eighth century B.C. Hippocrates spoke about the medicinal values of opium (‘opion’) more than twenty-five centuries ago. In India, psychotropic medications, ‘Soma Rasa’ and ‘Sura’- two potent liquors, are ascribed to ‘Sagar Manthan’ (churning of ocean) and have been utilized since long in Rig-Vedic religious services. Likewise, the use of cannabis sativa, the “Indian hemp”, is specified in Atharva Veda and its derivatives – bhang, ganja and charas are customarily used by some followers of Lord Shiva and have been a part of Indian culture (Roy & Rizvi, 1986). Opium, which was brought to India by Arab merchants in the seventeenth century, set up its underlying foundation in Indian culture solidly and it was viewed as a panacea for all the ailments. Opium was given to injured warriors to diminish pain and mothers also administered it to their little children during teething issues, intestinal disorders and other pains. In the nineteenth century, India under British rule ended up as one of the greatest few countries, which cultivated and traded opium.

Tolerance and Withdrawal Symptoms

A prime feature of chronic heroin abuse is the tolerance that develops, but the tolerance effects themselves do not occur in every bodily system. Gastrointestinal effects of constipation and spasms do not show much tolerance at all, whereas distinctive pupillary responses eventually subside with chronic use. The greatest signs of tolerance are seen in the degree of analgesia, euphoria, and respiratory depression. The intense thrill of the intravenous injection gets noticeably lessened. The overall decline in heroin reactions, however, is dose-dependent. If the continuing level of dose is high, then tolerance effects will be more dramatic than if the level of dose is low. The first sign of heroin withdrawal, a marked craving for another fix, generally begins about four to six hours after the previous dose and intensifies gradually to a peak over the next thirty-six to seventy-two hours, with other symptoms beginning a few hours later. The abuser is essentially over the withdrawal period in five to ten days, though mild physiological disturbances, chiefly elevations in blood pressure and
heart rate, are observed as long as six months later (Levinthal, 2005). Generally, these long-term effects are associated with a gradual withdrawal from heroin rather than an abrupt one. The overall severity of heroin-withdrawal symptoms is a function of the dosage levels of heroin that have been sustained. When dosage levels are less than 10 percent, the withdrawal symptoms are comparable to a moderate to intense case of the flu. In more severe cases, the withdrawal process can result in a significant loss of weight and body fluids. With recent increases in the purities of street heroin in the 1990s, the symptoms of withdrawal are greater. Only rarely, however, is the process of heroin withdrawal life-threatening, unlike the withdrawal from barbiturate drugs. It should not be surprising that withdrawal symptoms are essentially the mirror image of symptoms observed when a person is under the influence of heroin. If we are dealing with a group of endorphin-sensitive receptors that are, in the case of the heroin abuser, being stimulated by the opioids coming in from the outside, then it is reasonable to assume that over time, the production of endorphins would decline. By that argument, withdrawal from heroin would then be a matter of cutting off those receptors from that external source, resulting in a reaction opposite to the one that would have occurred had the receptors been satisfied in the first place. Over a period of time, coinciding with the withdrawal period for a heroin abuser, we would expect that the normal production of endorphins would re-establish itself and there would be little or no need for the external supply of heroin. This explanation for heroin dependence sounds reasonable and does account for the presence of withdrawal symptoms, but unfortunately it is an oversimplification for heroin abuse. It is expected that once the endorphin-sensitive receptors regain their natural supply of endorphins, heroin abuse should end, but we know that it does not. In the case of heroin abusers, their tendency to continue taking heroin is propelled by a number of factors. There is, first of all, the combination of fear and distress associated with the prospect of experiencing withdrawal symptoms, along with a genuine craving for the effects themselves, reflecting the physical and psychological dependence that heroin inflicts. In addition, long term heroin abuse frequently produces such a powerful conditioned-learning effect that the social setting in which the drug-taking behavior has occurred takes on reinforcing properties of its own. Even the act of inserting a needle can
become pleasurable. Some heroin abusers (called needle freaks) continue to insert needles into their skin and experience heroin-like effects even when there is no heroin in the syringe. In effect, the heroin abuser is responding to a placebo (Levinthal, 2005).

**DIAGNOSTIC CRITERIA FOR DEPENDENCE SYNDROME / ACCORDING TO ICD-10 (WHO, 1992)**

- “a strong desire or sense of compulsion to take the substance;
- difficulties in controlling substance-taking behaviour in terms of its onset termination, or levels of use;
- a physiological withdrawal state when substance use has ceased;
- evidence of tolerance, such that increased doses of the psychoactive substance are required in order to achieve effects originally produced by lower doses;
- progressive neglect of alternative pleasures or interests because of psychoactive substance use, increased amount of time necessary to obtain or take the substance or to recover from its effects;
- persisting with substance use despite clear evidence of overtly harmful.”

**DEPENDENCE CRITERIA AS GIVEN BY DSM-V (APA, 2013)**

“A problematic pattern of opioid use leading to clinically significant impairment or distress, as manifested by at least two of the following, occurring within a 12-month period:

1. Opioids are often taken in larger amounts or over a longer period than was intended.
2. There is a persistent desire or unsuccessful efforts to cut down or control opioid use.
3. A great deal of time is spent in activities necessary to obtain the opioid, use the opioid, or recover from its effects.
4. Craving, or a strong desire or urge to use opioids.
5. Recurrent opioid use resulting in a failure to fulfil major role obligations at work, school, or home.
6. Continued opioid use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of opioids.
7. Important social, occupational, or recreational activities are given up or reduced because of opioid use.
8. Recurrent opioid use in situations in which it is physically hazardous.
9. Continued opioid use despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.
10. Tolerance, as defined by either of the following:
    a.) A need for markedly increased amounts of opioids to achieve intoxication or desired effect.
    b.) A markedly diminished effect with continued use of the same amount of an opioid. This criterion is not considered to be met for those taking opioids solely under appropriate medical supervision.
11. Withdrawal, as manifested by either of the following:
    a) The characteristic opioid withdrawal syndrome (refer to Criteria A and B of the criteria set for opioid withdrawal).
    b) Opioids (or a closely related substance) are taken to relieve or avoid withdrawal symptoms.”

Causes and Theories of Drug Addiction

In enhancing our understanding of the etiological factors of addiction, we must look at the holistic perspective of the problem. Many individual, psychological, social and biological factors influence a person’s initial drug use. The underlying and associated causes of drug addition, as understood by different theoretical viewpoints are listed below:

(a) Physical-Dependence Theory/ Biological Perspective

Among the more biologically based theories, the ‘physical-dependence theory’ of addiction (i.e. withdrawal relief paradigm or opiate addiction model) is particularly more relevant to opiate dependence. This model regards compulsive drug taking as the behavioural manifestation of a desperate need to relieve aversive withdrawal
symptoms because chronic utilization of opiate causes pathological changes in autonomic functioning, producing effects, for example, withdrawal and tolerance (Lyvers, 1998).

Acute (or recreational) drug use causes the release and prolonged action of dopamine and serotonin within the reward circuit. Different types of drugs deliver these neurotransmitters by different methods. Dopamine binds to the D1 receptor, triggering a signaling cascade within the cell (Kalivas & Volkow, 2005).

Since addictive drugs are positive reinforcers, it is vital to understand the reward circuit, or the pathways in which drugs act and how drugs can modify those pathways. The reward circuit, also called the mesolimbic system, is characterized by the interaction of several areas of brain.

The Ventral Tegmental Area (VTA) comprises of dopaminergic neurons which respond to glutamate. These cells respond when stimuli indicative of a reward are present. The VTA supports learning and sensitization development and discharges dopamine into the forebrain (Jones & Bonci, 2005). These neurons also project and discharge dopamine into the nucleus accumbens (Eisch & Horburg, 2006), through the mesolimbic pathway. Virtually all drugs causing drug addiction upsurges the dopamine release in the mesolimbic pathway (Rang, 2003) in addition to their specific effects.

The nucleus accumbens (NACC) comprises chiefly of medium-spiny projection neurons which are GABA neurons (Kourrich, Rothwell, Klug, & Thomas, 2007). NACC is related with acquiring and eliciting conditioned behaviors and involved in the increased sensitivity to drugs as addiction advances (Jones & Bonci, 2005).

The prefrontal cortex, more specifically the anterior cingulated and orbitofrontal cortex (Kalivas & Volkow, 2005) is significant for the integration of information which contributes to whether behaviour will be elicited. It appears to be the area in which motivation originates and the salience of stimuli are determined (Floresco & Ghods, 2006). The basolateral amygdala projects into the NACC and is thought to be important for motivation as well (Floresco & Ghods, 2006).
Additional evidence is pointing towards the role of the hippocampus in drug addiction because of its importance in learning and memory. Much of this evidence stems from investigations manipulating cells in the hippocampus that alter dopamine levels in NACC and firing rates of VTA dopaminergic cells (Eisch & Harburg, 2006).

It is hypothesized that stress mechanism also plays a role in addiction, in addition to the reward circuit. Koob and Kreek have hypothesized that during drug use corticotrophin releasing factors (CRF) activate the hypothalamic pituitary-adrenal axis (HPA) and other stress systems in the extended amygdala. This activation influences the deregulated emotional state associated with drug addiction (Koob & Kreek, 2007).

Understanding the mechanism of learning and behaviour in the reward circuit can help understand the action of addictive drugs. Drug addiction is characterized by strong drug seeking behaviours in which the addict persistently craves and seeks out drugs, despite the knowledge of injurious consequences (Kalivas & Volkow, 2005; Koob & Kreek, 2007). Addictive drugs produce a reward, which is the euphoric feeling resulting from sustained dopamine concentrating in the synaptic cleft of neurons in the brain. Operant conditioning is exhibited in drug addicts, as well as in laboratory mice, cats and primates; they are able to associate an action or behaviour, in this case seeking out the drug, with a reward, which is the effect of the drug (Jones & Bonci, 2005). Evidence shows that this behaviour is most likely a outcome of the synaptic changes which have occurred due to recurrent drug exposure (Kalivas & Volkow, 2005; Koob & Kreek, 2007; Jones & Bonci, 2005).

According to numerous studies that have investigated generational differences in the transmission of drug abuse, drug abuse is elevated among siblings of drug abusers and that there is a direct relationship between parental drug use or abuse and offspring’s use or abuse (Meri Kangas, Rounsaville, & Prusoff, 1992). It was also examined by Merikangas (1990) that high occurrence of alcoholism among offspring of parents with alcoholism demonstrates that family history is one of the most powerful predictors of vulnerability to alcohol abuse, which results to some extent from genetic factors. Further, a high rate of alcohol and opioid dependence has been
evidenced in the first-degree relatives of opioid dependent patients (Prasant, Mattoo, & Debasish, 2006). Also, it is observed that the knowledge of father’s alcohol use and its time of onset may be used to determine children who are at added risk of problematic alcohol use later in life (Seljamo, Aromaa, Koivusilta, & Rautava, 2006), indicating familial and genetic impact on addiction. Therefore, it has been recognized that parenting and familial influence on substance use and substance use disorder are vital areas of study, both for theories of etiology and for the development of preventive and treatment interventions (Chassin & Handley, 2006). A growing literature suggests that individual differences in vulnerability to develop substance related problems are influenced to a large degree by genetic factors (Prescott, Madden, & Stallings, 2006). Family, twin and adoption studies provide strong evidence that addiction runs in families and that this is determined in part by genetic factors (Ball, 2008).

(b) Disease Model/ Theory

The ‘disease model’ or ‘medical model’ has been accepted and adopted by the American Medical Association, the World Health Organization and the National Council on Alcoholism (McKim, 1997). According to this model, as defined in the International Classification of Disease (ICD-10), addiction is a physical disease, and like all other diseases, it is characterized by signs and symptoms as well as by its progressive nature. It has been recognized that it is damaging in nature if not attended to, and it is assumed that the only means of eradicating the disease is to target the toxic agent. However, one problem with viewing addiction as a disease, is that it is unclear as to how the disease commences.

(c) Psycho Analytic/ Dynamic Theory

Area of addiction was of great interest for Sigmund Freud. In 1897, he penned to a friend that “sexual gratification is a primary addiction and that the other addictions for alcohol, morphine, tobacco, etc. only enter into life as a substitute and replacement of it” (Frosch, 1985). Thus, it appears, that Freud believed that both smoking and drinking were related to oral eroticism (Frosch, 1985; Royce & Scratchley, 1996). At another point in his life, Freud postulated that alcoholism was a
slow form of suicide which sprang from the death instinct or that latent homosexuality could be a causal contributor to the misuse of alcohol (Haynes, 1988; Royce & Scratchley, 1996). Freud postulated primary theories regarding the etiology of alcoholism stressing on slow suicide, oral fixation and latent homosexuality. Later analytic viewpoints added elements to the traditional Freudian viewpoint that oral gratification was a prime component in the etiology of addiction. Glover (1920) emphasized that addiction was attributed to a fixation at oral and anal sadistic stages, alcoholics exhibited a propensity to regress to a “narcissistic state of ego organization which sets into action a primitive ego mechanism of projection “as well as” a disordered and severe primitive conscience leading to fruitless exploitation of the same mechanism of projection” (Frosch, 1985).

(d) Behaviourist & Learning Theories

Behaviourists used classical and operant conditioning paradigm to described addiction. Once learned, the behaviour is maintained by reinforcing contingencies (Shaffer & Schneider, 1985). Wilker (1965) hypothesized a two-stage approach to addiction. The acquisition of an addiction can be explained in terms of the classical conditioning model. This occurs with the addict’s pairing of conditioned stimuli such as thoughts or emotions with an unconditioned stimulus, such as a narcotic. The rush euphoria experienced by the addict with the ingestion of narcotics then acts as an unconditioned response. Wilker (1965) believed that operant conditioning is responsible for the maintenance of an addiction, asserting that the narcotic’s ‘fix’ averts the unpleasant side effects of the withdrawal. In operant terms, the cessation of the unpleasant effects of withdrawal constitute negative reinforcement (Shaffer & Schneider, 1985; Wilker, 1965). Shaffer and Schneider (1985) contended that the use of Antabuse and Naltrexone as clinical interventions are based in part on Wilker’s two stage model. They state that Naltrexone, which is a narcotic agonist, suppresses the link between conditioned stimuli and conditioned responses. Further, Antabuse acts in a manner that aversive consequences replace previous consequences that were positively reinforcing. Benjamin Rush experimented with aversion therapy in the 1780’s. In the early part of the 19th century, a physician known as Dr. Kain “used a tartar emetic as an aversive agent to link the taste and smell of alcohol to nausea” (White, 1998). Traditionally, much of behavioural treatment in general, and of
addictions specifically is based on the principles of reinforcement: that positive reinforcement, negative reinforcement and punishment serve as powerful behavioural motivators (Atkinson, Atkinson, & Hilgoid, 1983). According to radical behaviourism, internal cognitive events are inappropriate targets for behavioural assessment and intervention (Atkinson et al., 1983; Shaffer & Schneider, 1985). However, most practitioners today who are using behavioural approaches to treat addictions take a less restrictive approach. Shaffer and Schneider (1985) describe what they call the “neo classical” approach to behavioural therapy for addictive behaviour as worked by “the centrality ascribed to various internal constructs of dysphoria”. They cite the negative consequences of withdrawal including such unobservable internal states as anxiety, panic and addictive cravings, etc. as being constructs which are fundamental to such techniques as systematic desensitization, reciprocal inhibition and flooding.

(e) Social Learning Theory

According to Social learning theory, not all behaviour can be attributed solely to external reinforces. Rather, behaviour can also be learned through the observation of others (Crooks & Stein, 1991). Social learning theory, as it applies to etiology and treatment of addiction assumes that, like pro-social behaviour, deviant behaviour patterns are acquired and maintained on the basis of three regulatory systems: First, social learning theorist assume that some behaviour patterns are under the control of external stimulus events and are affected largely by the classical conditioning model. Secondly, reinforcement process—the main focus of operant conditioning is considered as another major form of behaviour control. Third, and perhaps the most important system of regulatory influence for the social learning school, is the role of cognitive mediational processes (Shaffer & Schneider, 1985). Unlike traditional models of classical and operant conditioning, the social learning perspective considers people to be actively involved in the learning process. Therefore, these findings were interpreted to suggest that one’s cognitive approach to coping many impact drug and alcohol relapse by reducing appraised stress in a relapse-risk situation and, thus, decreasing active coping efforts (Myers, Brown, & Mott, 1993). In a more recent study, lifestyle coping strategies of cocaine abusers and relationship to treatment outcome was examined. Less cocaine use was associated with problem focused
coping that involved thinking about negative or positive consequences, alternative behaviors, distraction, relaxation/meditation, escape, refusal to offer of drug use, spiritual methods, behavior chains, mastery messages, problem-solving, or seeking social support. The lifestyle change strategies of thinking about consequences, working towards goals, thinking of oneself as sober, clean recreation, regular relaxation, avoiding temptations, not carrying much money, living with clean people, seeking social support, spiritual involvement, keeping busy and health activities were also related with less cocaine use (Rohsenow, Martin, & Monti, 2005).

There is no escaping from the ambivalent relationship one has with opium and a category of similarly acting drugs that are collectively known as opioids. This is a group of psychoactive drugs with the astonishing ability to banish pain from one’s life and, at the same time, the potential for enslaving one’s mind. Historically, opioid drugs have been referred to as narcotics (from the Greek word for “stupor”), in that they produce a dream-like effect on the user and higher doses induce a state of sleep. The term “narcotic” was used at one time inappropriately to mean any illicit psychoactive drug or at least any drug that caused some degree of dependence, including such unlikely examples as cocaine and amphetamine, which are anything but sleep-inducing. Ironically, specific drugs are presently obtainable that have no relationship to opium or opioids but are far more effective in inducing sleep.

TREATMENT

Most of the treatment approaches of contemporary programs follow three standard components: screening; assessment and diagnosis; and treatment plan (Principles of Drug Dependence Treatment, 2008).

1. **Screening** identifies individuals with hazardous or harmful drug use or dependence and associated risk behaviors, such as needle sharing, unprotected sexual activity, and violence. There are standardized tools to assess drug use and its severity and thus determine the degree of treatment required. These tools can be applied in different environments, such as health care systems, school health and counseling services, and employee assistance programs.

2. **Diagnosis** frequently uses references common to the mental health field: stage and severity, physical and mental health status, individual temperament and
personality traits, vocational and employment status, family and social integration, and legal situation. It considers environmental and developmental factors, including childhood and adolescent history, family history and relationships, social and cultural circumstances, and previous treatment experience. The diagnostic process creates an environment for a therapeutic relationship with the client.

3. **Treatment** is based on a plan and is developed with the client and establishes goals in accordance with identified needs and sets interventions to meet those goals, a written description of the treatment to be provided and its anticipated course. Treatment plans set the specific individual needs and how they are going to be met by the program. The plan is then monitored and revised periodically, as required, to respond to the client’s changing situation.

**MEDICATION-ASSISTED TREATMENT**

A variety of treatment approaches use chemicals, often as a supplement to, or in conjunction with some other form of clinical or behavioral therapy. These medications target the pharmacological effect of a particular drug but “do nothing to counteract the effects of craving and overlearned drug-seeking behavioral responses that frequently lead to relapse” (Harwood & Myers, 2004).

**PSYCHOLOGICAL TREATMENT**

Treatment based on psychological theories can be broadly divided into those that are psychoanalytically oriented—sometimes referred to as dynamic or clinical—and those that utilize some form of behaviorism. Some programs mix the two approaches:

**Psychoanalytic Approach**

To the psychoanalyst, symptoms of neurotic behavior, such as drug abuse, are tied to repressed material from early life. In this view, the symptoms will disappear when the repressed material is exposed under psychoanalytic treatment. Therefore, the psychoanalyst seeks to make unconscious affect and memories available to the patient’s consciousness (Holinger, 1989). Therapies based on psychoanalysis aim at inducing the patient to give up the repressions belonging to his early life and to
replace them by reactions of a sort that could correspond better to a psychically mature condition. To accomplish this, a psychoanalyst uses interpretation attempts to get the patient “to recollect certain experiences and emotions which he has at the moment forgotten or repressed” (Reiff, 1963). This is accomplished through dream interpretation and free association. While in a relaxed state, the patient is asked to say what comes to mind about any given element in a dream, or the therapist might ask the patient to let a proper name or even a number occur to him or her. The train of associations stirred up by the dream, the name, or the number becomes an entry point for the release of repressed material, which the analyst helps the patient to interpret.

**Behavior Modification**

Behavior modification is a treatment approach based on learning theory. The strength of psychoactive substances as positive reinforces and the negative reinforcement associated with abstinence provides conditioned responses that can explain the key difficulty in treating drug abusers: finding reinforces that can successfully compete with these substances. Methadone’s success in treating some heroin abusers can be explained in terms of behaviorism (Stitzer, Bigelow, & McCaul, 1985). Furthermore, according to operant conditioning, for behavior modification to be effective, reinforcement—negative or positive—must follow immediately after the behavior is exhibited; this instant gratification is what makes drug use so reinforcing and why it is difficult to use behavior modification techniques with chronic drug users.

**Aversion Treatment**

Behavior modification can also attempt to shape behavior by applying punishment or aversive stimulation. In actual drug treatment, Anectine (succinylcholine), a muscle relaxant that causes brief paralysis but leaves the patient conscious, is injected into the subject immediately following the heroin cook-up ritual. The addict-patient remains conscious but is unable to move or breathe voluntarily, conditions that simulate the onset of death. The dangers of heroin use are recited while the patient remains paralyzed. Drug antagonists can serve a similar function by rendering opiates or other substances ineffective—lacking positive
reinforcement—or extremely unpleasant—negative reinforcement or punishment. Disulfiram (Antabuse), metronidazole, or chlorpropamide can serve this purpose for alcohol abusers. Antabuse, the best known of these substances, disrupts the liver’s metabolism, producing a severe reaction that includes stomach and head pain, extreme nausea, and vomiting. Milder reactions can be triggered by any number of products that contain alcohol, such as cough medicine, mouthwash, or even skin lotions. In 1990, a patent was granted for a substance that has the appearance and smell of cocaine and even produces a numbing effect but is not psychoactive. The substance is used in conjunction with an aversive chemical (Andrews, 1990).

Other behavioral therapies use biofeedback and relaxation training and sometimes assertiveness training to prepare drug abusers to better cope with the stress and anxiety that are believed to be linked to drug use. Research has discovered a connection between cues and drug use. It is believed that the intensity of the drug euphoria burns emotional memories into brain circuits. These memories are encoded into a part of the brain—the amygdala—that operates outside of conscious control to cause intense cravings for re-creating the euphoric experience. These cravings are countered by desensitization treatment: “Patients are usually first relaxed, then given repeated exposure to a graded hierarchy of anxiety-producing stimuli (real or imaginal)” to provide a form of immunity (Childress, McLellan, & O’Brien, 1985).

In voluntary patients, electric shocks may be self-administered whenever a craving for the chemical arises. Some researchers report that the use of chemical or electrical stimuli has not proven effective in producing a conditioned aversion in drug abusers, while success has been reported with covert aversion techniques in which “a patient is asked to imagine strongly aversive stimuli (usually vomiting) in association with imaginal drug-related cues, scenes, and/or behavior” (Childress et al., 1985). Thus, imagined aversive stimuli might be superior to real aversive stimuli with the drug-dependent person although this appears to run contrary to a great deal of research in operant conditioning. In any event, “aversive counterconditioning is not a substitute for support for life enhancing behavior, rather it suppresses the undesirable behavior while other modalities support positive alternatives” (Frawley & Smith, 1990).
In an experiment using both chemical and verbal aversive techniques, cocaine abusers were provided with a non-psychoactive substitute that smelled like cocaine and numbed the nose. The white substance was set out with a razor blade, a straw, and mirrors for the preparation of “lines.” The patient received an injection of nausea-producing drugs. Just before the onset of nausea, the patient snorted the lines of “coke.” During the three-hour recovery period, the patient was encouraged to dwell on the drug paraphernalia and pictures of cocaine and to pair the use of cocaine with negative consequences. After six months of in-hospital and outpatient booster treatments, the abstinence rate was 78 percent. Although a few patients had used cocaine again during the six-month period, the relapses were quite brief (Frawley & Smith, 1990).

Social Learning Theory Approach

Social learning theory, a variant of behaviorism, focuses on cognitive mediational processes. According to this view, people are active participants in their operant conditioning processes—they determine what is and what is not reinforcing. Behavior is complex, and reinforcement is often abstract. Thus, notes Bandura (1974), “human beings can cognitively bridge delays between behavior and subsequent reinforcement without impairing the efficacy of incentive operations.” People have a unique capacity to use abstractions—symbols, such as the medals and trophies that are so dear to any amateur athlete as important reinforcers. The drug abuser is seen as lacking the level of social competence necessary to cope adequately with a variety of situational demands.

In using operant conditioning with drug abusers, the social learning theorist stresses patient analysis to discover the variables that are reinforcing. The therapist attempts to discover the situational demands and their related negative emotions that are related to the patient’s drug use. The treatment begins with an assessment of the positive and negative aspects of drug use and a self-report on the type, amount, and frequency of drugs used. The assessment includes a focus on the social, physical, and emotional environments in which drug use occurs (Donovan, 1988). Three types of stimuli can trigger intense craving leading to relapse Priming: Just one exposure to a formerly abused substance can precipitate rapid resumption of abuse at previously
established levels or greater. **Environmental cues:** Exposure to people, places, or things associated with drug use can lead to resumption of abuse. **Stress:** Acute and chronic stress can contribute to the establishment, maintenance, and resumption of drug abuse (Hanson, 2002b). After the assessment, the role of the therapist is to enable the patient to deal with triggering behavior so that it does not lead to drug use, the patient’s own report of the negative aspects of drug use serving as a motivator for adopting more positive coping strategies (Donovan, 1988).

**Cognitive Behavior Therapy**

The cognitive position, which has become dominant in psychology, maintains that it is necessary to look at thoughts, memory, language, and beliefs. The emphasis is on inner rather than environmental determinants of behavior. Cognitive approaches in general tend to focus not on the psychological causes of substance abuse but rather on teaching abusers to understand their cravings and to develop coping skills. This may include detailed planning on how to get from one day to the next without using drugs (Orenstein, 2002). Cognitive behavior therapy (CBT) is a short-term (e.g., twelve sessions in twelve weeks) outpatient approach focused on helping patients to **recognize, avoid, and cope:** recognize the situations in which they are most likely to use drugs, avoid these situations when appropriate, and cope more effectively with a range of problems and problematic behaviors associated with substance abuse (Carroll, 1998).

**Group Treatment**

Treatment using psychotherapeutic techniques or behavior modification may utilize casework - one-to-one counseling - or group approaches. “Because our need for human contact is biologically determined, we are, from the start, social creatures. This propensity to congregate is a powerful therapeutic tool” (Flores & Georgi, 2005). “Groups organized around therapeutic goals can enrich members with insight and guidance; and during times of crisis, groups can comfort and guide people who otherwise might be unhappy or lost” (Flores & Georgi, 2005). As Helen (1969), points out, one of the advantages of the uses of the group approach “is that stimulation toward improvement arises from a network of interpersonal influences in which all
members participate.” **Flores & Georgi (2005)** note the special value of group treatment, since “people who abuse substances often are more likely to remain abstinent and committed to recovery when treatment is provided in groups, apparently because of rewarding and therapeutic forces such as affiliation, confrontation, support, gratifications, and identification.” The basic theory underlying this approach is that peer interactions are more powerful than therapist-patient interactions in the one-to-one situation. In casework, the relationship between therapist and patient can remain distant because the therapist typically lacks the all-important personal experience with drug abuse. In the group approach, the group, not the group leader or therapist, is the helping instrument, obviating the therapist’s personal experience with drugs. Furthermore, many critical interpersonal behaviors that might not emerge in the casework approach will emerge in a group (**Flores, 1988**).

**DRUG TREATMENT PROGRAMS**

The treatment of drug-dependent people presents an obvious problem: If we do not know the cause, how can we offer the “cure”? This problem is exacerbated by programs that fail to develop theory-centered treatment responses or to incorporate the results of research into their efforts to approach the clients. While matching patient needs with specific treatments is the norm in medicine, this approach might be missing in drug programs that are housed in medical settings (**Hester & Miller, 1988**).

The admission policies of some in-patient programs depend more on financial status than on matching patient needs and program resources. Often, these are relatively new programs looking for middle- and upper-class patients, who are most likely to enjoy high financial status and/or have third-party or insurance support. Assessment and intake are informal or based on available space. Mounting health-related costs have caused third-party payment organizations to “require treatment organizations to further document and better justify the need for treatment” (**Winters & Henly, 1988**).
Therapeutic Community

Therapeutic Community (TC) is a generic term for residential, self-help, drug-free treatment programs that have some common characteristics, including concepts adopted from Alcoholics Anonymous (AA): “There is no such thing as an ex-addict, only an addict who is not using at the moment; the emphasis on mutual support and aid; the distrust of mental-health professionals; and the concept of continual confession and catharsis. However, the Therapeutic Community has extended these notions to include the concept of a live-in community with a rigid structure of day-to-day behavior and a complex system of punishment and rewards” (DeLong, 1972). “The primary aims of the therapeutic community are a global change in lifestyle reflecting abstinence from illicit substances, elimination of antisocial activity, increased employability, and pro-social attitudes and values. A critical assumption in therapeutic community is that stable recovery depends upon a successful integration of these social and psychological goals. The rehabilitative approach, therefore, requires multidimensional influences and training that, for most clients, can only occur after an extended period of living in a 24-hour residential setting” (De Leon, 1986b).

The therapeutic community “views drug abuse as deviant behavior, reflecting impeded personality development and/or chronic deficits in social, educational and economic skills” (De Leon, 1986a; DeLeon, 2000). “A considerable number of therapeutic community clients never have acquired conventional lifestyles. Vocational and educational deficits are marked; mainstream values either are missing or unpursued. Most often, these clients emerge from a socially disadvantaged sector where drug abuse is more a social response than a psychological disturbance. Their therapeutic community experience can be termed habilitation—the development of a socially productive, conventional lifestyle for the first time in their lives” (De Leon, 1994). “According to the therapeutic community treatment perspective, drug abuse is a disorder of the whole person; the problem is the person, not the drug, and the addiction is only a symptom and not the essence of the disorder” (Nielsen & Scarpitti, 1997).
Narcotics Anonymous

Robertson and Learned (1988) note that some AA groups are less than accepting of people who are addicted to substances other than alcohol. Wilson was opposed to allowing heroin addicts to become part of AA. However, there are self-help groups for drug abusers based on the twelve-step approach, such as Narcotics Anonymous (NA) and Cocaine Anonymous (CA). According to its website, NA “sprang from the Alcoholics Anonymous Program of the late 1940s with meetings first emerging in the Los Angeles area of California, USA, in the early Fifties.” There are more than 20,000 registered NA groups holding over 30,000 weekly meetings in more than 100 countries. Attendance records are not kept either for NA’s own purposes or for others. Because of this, it is sometimes difficult to provide interested parties with comprehensive information about NA membership. NA membership is open to all drug addicts, regardless of the particular drug or combination of drugs used. When adapting AA’s First Step, the word “addiction” was substituted for “alcohol,” thus removing drug-specific language while maintaining the “disease concept” of addiction. As in AA, there are no dues or fees for membership, although most members contribute in meetings to help cover expenses.

The Minnesota Model

One of the best examples of the AA approach in private inpatient chemical dependence treatment is the so-called Minnesota model, which integrates the twelve-step approach into the medical treatment of addiction (DuPont & McGovern, 1994). The Hazelden Foundation in Center City, Minnesota, has inspired many similar programs in the United States and England in which substance abuse is seen as an incurable but controllable disease. Total abstinence and lifestyle improvement are the treatment goals. The 28-day program begins with an admissions assessment and detoxification following medical protocol. Individual counseling is provided by abusers who are “in recovery” and professional staff, including physicians, social workers, nurses, and clergy. Therapy groups take various forms, all of which are present and future oriented, including problem solving, personal issues, and decision making related to substance use, family sessions, and confrontations similar in process to those of the therapeutic community.
Rounding out the program are lectures and videos on a variety of related topics, including AA/NA, the social and psychological aspects of substance abuse, and techniques for handling substance abuse problems, as well as reading and writing assignments. Aftercare usually involves attendance at AA or NA meetings (Cook, 1988a). In a review of research on the Minnesota model, Cook concludes: “Despite exaggerated claims of success, it appears to have a genuinely impressive ‘track record’ with as many as two-thirds of its patients achieving a ‘good’ outcome at one year after discharge” (Cook, 1988b). This treatment-focused private sector approach to substance abuse is obviously expensive, and patients, who include such luminaries as Betty Ford and Elizabeth Taylor, are therefore representative of the economically successful. The Minnesota model is used by Central Ohio’s Mary haven, whose staff is made up primarily of former twelve-step participants in recovery. “Mary haven integrates twelve-step-related practices and interventions into all of its basic services to assist the patient with the goals of self-diagnosis, acceptance of addiction as an illness, and acceptance of abstinence” (Brigham, 2003).

Control measures for SUDs comprise of three broad arms: supply reduction, demand reduction, and harm reduction.

UNODC (2000) defines these terms as follows: Supply reduction refers to a broad range of strategies and actions to stop or minimize the production, manufacture, and distribution of illicit drugs (UNODC, 2000). Demand reduction is a broad term used for a range of policies and programs which seek a reduction of desire and preparedness to obtain and use illegal drugs. Demand for drugs may be reduced through prevention and education programs to dissuade users or potential users from experimenting with illegal drugs and/or continuing to use them; treatment programs mainly aimed at facilitating abstinence, reduction in frequency or amount of use; drug substitution programs (e.g. methadone); court diversion programs offering education or treatment as alternatives to imprisonment; broad social policies to mitigate factors contributing to drug use such as unemployment, homelessness, and truancy (UNODC, 2000). In the context of alcohol or other drugs, Harm reduction refers to policies and programs that focus directly on reducing the harm resulting from the use of alcohol and other drugs, both to the individual and the larger community, without
necessarily requiring abstinence. Examples include needle/syringe exchange programs, bleach distribution, education about safe injecting practices, condom distribution, etc., all focusing on reduction of risk of HIV and other infections among injecting drug users (UNODC, 2000). While addicts and drug dependents encounter the shutting between relapse and abstinence, it would be pertinent to understand the dynamics of relapse & abstinence.

**ICD-10 Criteria of Abstinence (WHO, 1992)**

The Tenth Revision of the International Classification of Diseases and Health Problems (ICD-10) defines the dependence syndrome as being a cluster of physiological, behavioural, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value. A central descriptive characteristic of the dependence syndrome is the desire (often strong, sometimes overpowering) to take the psychoactive drugs (which may or not have been medically prescribed), alcohol, or tobacco. There may be evidence that return to substance use after a period of abstinence leads to a more rapid reappearance (relapse) of other features of the syndrome than occurs with nondependent individuals.

- “Currently abstinent
- Currently abstinent, but in a protected environment (e.g. in hospital, in a therapeutic community, etc.)
- Currently on a clinically supervised maintenance or replacement regime [controlled dependence] (e.g. with methadone etc.)
- Currently abstinent, but receiving treatment with aversive or blocking drugs (e.g. naltrexone)
- Currently using the substance [active dependence]
- Continuous use
- Episodic use (dipsomania)”

**Relapse**

Return to regular use (at least 4 to 5 days continuously in a week for a minimum period of 1 week) of the primary substance (opioid) after the abstinence
period is defined as relapse; and use of primary substance (opioid) for a period between 1 to 3 days is defined as lapse.

A relapse to substance use could be conceptualized by increased levels of substance consumption, either after a period of abstinence or after a period with lower levels of consumption (Brownell, Marlatt, Lichtenstein, & Wilson, 1986; DiClemente, 2003; Marlatt & Gordon, 1980; McKay, 1999). A distinction should be made between lapses and relapses. Lapses could be regarded as minor occurrences of substance use, where the person temporarily returns to previous substance use habits. Brownell et al. (1986) argued that this is not uncontrollable substance consumption. During a lapse, the individual can yet adjust behaviour in time to re-establish abstinence.

Relapse is usually preceded by lapses. The severity levels and frequencies of lapses required for a relapse to occur vary across individuals (Brownell et al., 1986). Whether a lapse results in a relapse also depends on how the individual responds to the lapses. For instance, if the individual interprets minor incidents of substance use as a relapse, it could result in a self-fulfilled prophecy (DeJong, 1994). Perhaps a prerequisite of a relapse is that the substance use is perceived as uncontrollable by the individual. This could indicate that the person was unable to maintain the behavioural changes obtained during the abstinence period in treatment (DiClemente, 2003).

Marlatt and Gordon (1985) concluded that risk factors for relapse can be categorized into negative and positive emotional states, social conflicts, temptations or urges and peer pressure to consume substances. The level of coping skills established by the individual may also reduce or increase the likelihood of a risk factor leading to a relapse. The potential of relapse is likely to increase when patients leave the controlled treatment environment and enter the more uncontrolled context of their daily lives, which may offer substance availability and situations associated with substance use that trigger substance craving. The temptation to use substances may increase with the removal of control mechanisms such as urine tests and the patients have to rely on their coping resources (Brewer, 1993; Chutuape, Silverman, & Stitzer, 2001). Yet, relapses after treatment can be regarded as process variables, and as such, a part of the recovery cycle, rather than an indication of failure.
Substance addiction may also produce substantial cognitive and biochemical changes within the individual. For example, excessive substance use could decrease the action potentials in the reward systems in the brain and facilitate the development of maladaptive stress systems within the limbic system (Koob, 2009). These changes may also manifest after treatment. Similar to other chronic disorders, improvement in the coping resources of the patients may be more realistic than a complete cure for the disorder (O’Brien & McLellan, 1996; Sellman, 2009). Accordingly, research has demonstrated that relapse to substance use after treatment is more a rule, rather than an exception. Hunt, Barnett and Branch (1971) found that the majority of patients in treatment for heroin and alcohol addiction relapsed during the first three months after treatment. Despite the fact that relapses to substance use are common after treatment, these events are not desirable.

One of the core aims of treatment for substance use disorders is to improve on individual abilities to cope without uncontrollable and maladaptive substance use. Relapse after treatment indicates that this objective has yet to be reached. Therefore, research should focus on factors that reduce or increase the relapse risk in this patient group. This approach may aid programme developers, decision makers and clinicians by identifying risk groups and protective factors that can be focused on, in clinical practice and aftercare (Kedia & Williams, 2003). Several studies have examined factors related to relapse risk after treatment. Previous studies have shown that depressive mood and low levels of social support increase the probability of relapse (Cornelius, Maisto, Pollock, Martin, Salloum, Lynch, & Clark, 2003; Hammerbacher & Lyvers, 2006).

Xie, McHugo, Fox and Drake (2005) broadened the research perspective by investigating demographic and contextual factors related to relapse. The study revealed that relapses were more likely among males and people with a low education level. Individuals who were unemployed or lived alone also had high relapse risk. One study found that older individuals may have lower likelihood of relapse than younger adults (Oslin, Pettinati, & Volpicelli, 2002). Furthermore, substance use characteristics, such as an early onset of substance addiction, may increase the relapse risk (Landheim, Bakken, & Vaglum 2006). Equivocal evidence has been found
regarding the role of specific substances for the probabilities of a relapse. On one hand, some studies have demonstrated the importance of such variables (Ciesla, Valle, & Spear, 2008; Domino et al., 2005; Salah, Gaily, Sheikh, & Bashir, 2004), on the other hand, several studies did not support an association between specific substances and relapse rates (Hammerbacher & Lyvers, 2006; Hunt et al., (1971); Xie et al., 2005). A reason for the lack of evidence regarding the importance of the role of specific substances could be that the majority of patients with substance addiction are poly-substance users (Curran, Kirchner, Worley, Rookey, & Booth, 2002; DeJong, 1994).

As shown by the cited studies, several factors associated with increased or decreased probability of relapse have been revealed. In addition to some contradictory findings (Domino et al., 2005; Xie et al., 2005), the majority of studies have mainly focused on co-occurring psychiatric disorders and treatment interventions. These factors are likely to influence the risk of a relapse among patients. However, studies carried out more recently have also demonstrated the importance of contextual variables such as gender, age, education and social support. Research on relapse should investigate both contextual and psychosocial variables given that patients live most of their lives outside the context of specialized treatment services for substance use disorders. Furthermore, previous studies have mainly focused on general characteristics and variables that explain substance use among patients who experienced relapse. Fewer studies have examined factors associated with a prolonged or reduced time interval between treatment discharge and relapse. This enquiry is interesting because factors associated with a prolonged period from treatment discharge to a relapse may relate to patients’ abilities to maintain the changes achieved during treatment. Conversely, factors associated with a reduced time interval between treatment discharges and relapse may constitute risk factors that inhibit the patients’ capability to maintain changes and may also identify particular risk groups with high relapse potential after treatment. If such risk groups are identified, relapse-preventing countermeasures and adjustment to the specific needs of these individuals could be integrated into treatment, aftercare and treatment follow-up.
THEORIES OF RELASPE

Self-medication Hypothesis

An explanation was postulated in the self-medication hypothesis, which asserts that people use substances to alleviate negative emotional stress (Duncan, 1974; Khantzian, Mack, & Schatzberg, 1974). In an extension of this assumption, studies have shown that patients with bipolar depression had higher probability of relapse than those not diagnosed with such co-occurring disorders (Tohen, Waternaux, & Tsuang, 1990). In addition, studies have demonstrated that borderline personality disorder predicts increased likelihood of relapse (Nace, Saxon, & Shore, 1986). In a Norwegian study, patients with major depression had significantly higher relapse risk than individuals without co-occurring mental disorders (Landheim, et al., 2006). However, Schadé et al. (2005) found no significant reduction in relapse rates after treatment when symptoms of anxiety were alleviated in patients with alcohol addiction. The cited studies mainly investigated co-occurring psychiatric disorders in relation to relapse. Contextual factors, such as occupational activities, may be equally important for maintaining abstinence after treatment. The relevance of contextual factors was underlined in behavioural choice theory (Bickel & Vuchinich, 2000). Within this theoretical framework, relapse to substance use could be understood as a lack of alternative rewarding activity to substance consumption. In behavioural choice theory, alternative activities that provide protection against substance use are more significant protective factors of relapse among patients with substance use disorders. As such, the theory argues that alternative activities and rewards may shield individuals from exposure to substance-relevant cues and reduce the obtainability and likelihood of consuming substances. Hence, substance use may be more likely to reoccur when other rewarding activities, such as religious activities, physical activities, work and educational activities, are unavailable or inaccessible in the social environment of the individual (Bickel & Vuchinich, 2000; Moos, 2007).

Behavioural Choice Theory

An implication of behavioural choice theory is that relapse could be ascribed to lack of resources and factors in the individual’s context rather than solely
psychological symptoms and withdrawal symptoms. A study conducted by Robins (1974) on veteran soldiers who had been addicted to heroin during the Vietnam War showed that context plays a vital role for substance use. A year after the returned to the United States, only about 8% of these veterans fulfilled the criteria for heroin addiction. A follow-up two years later showed that this tendency was stable over time (Robins, Helzer, Hesselbrock, & Wish, 1980). The majority of the veterans had not received treatment for substance use disorders. Hence, it is possible that individuals who develop an addiction could diminish their substance consumption or stop entirely when the social context and circumstances significantly improve (Robins, Helzer, & Davis, 1975). On the other hand, it is a fair argument that these individuals did not have a particular vulnerability of developing substance addiction. Consequently, it may have been easier for them to reduce or terminate their substance use when they moved to a less extreme social environment.

**Behaviour Change Model**

According to Prochaska, Di Clemente and Norcross (1992), individual proceeds through six stages of change during behavioural changes. First, the individual is in a pre-contemplation stage in which he/she does not realize the harmful consequences of substance use and does not intend to amend the addictive behaviours. The change process is initiated during the second stage, when the individual becomes aware of the negative consequences of substance use and desires behaviour change and approaches the contemplation stage of change. During the third stage, termed the preparation stage, the individual investigates information about how to change behaviour e.g. examine available treatment options or speak to others about how changes will influence their life. Thereafter, the action phase begins and the individual aims at changing the behaviour by obtaining abstinence over a period of time. The maintenance phase is when the individual aims to avoid relapses and continues abstinence over a longer period of time. Lastly, the individual may reach the termination phase where the individual has obtained sufficient self-efficacy to resist excessive substance use in various social situations.

Prochaska et al. (1992) suggested that the individual’s progress through these six stages of change is in a spiral pattern which clearly means that patients should
expect to proceed through these phases several times before a stable behavioural change is established. An important implication of this model is that relapses could occur within any of the stages in the model. Hence, re-occurring relapses could be considered as movement from abstinence maintenance to an earlier stage in the process of change model. The precise stage that the patients are in during the relapse, has the capacity to influence how they cope with the relapse as self-efficacy may increase as the individual progresses through the stages. From the perspective of this model, relapses may yield information that could be used to improve coping and to increase the probability of successfully altering the addictive behaviours. At last, the information obtained by relapses are employed in a way that causes the individual to spend more and more time in the action and maintenance phases of change.

Social-Cognitive-Behavioural Model

Marlatt and Gordon (1980), in one of the most influential social-cognitive-behavioural model, viewed relapse as an unfolding process in which resumption of substance use is the last event in a long sequence of maladaptive responses to internal or external stressors. Like most other models, this model also proposes that an individual experience a sense of perceived control while maintaining abstinence. This perception of self-control endures till the person encounters a ‘high risk’ situation. Three categories of such situations viz., negative emotional states, interpersonal conflicts, and social pressures have been proposed. The probability of a relapse is considerably lessened, if the individual is able to execute an effective coping response in such problem-situations. Effective coping depends on the individual’s self-efficacy, defined as his/her expectations concerning the capacity to cope with several ‘high risk’ situations. An increased perception of self-efficacy helps in maintenance of abstinence. Conversely, ineffective coping results in lowering of self-efficacy and a sense of helplessness. This can precipitate minor slips or lapses into substance use, which eventually snowball into a complete relapse.

Person-Situation Interaction Model

Relapse is determined by an interaction among three factors: situations that the individual perceives as threatening (“high risk”), availability of an adequate repertoire
of coping strategies, and the individual’s perception of the effectiveness of available coping strategies (Litman, 1986).

Self-efficacy and outcome expectancies

Initial substance use occurs from the mislabeling of negative affect and negative physical states as craving. After the first substance use, expectations of control over such use decrease along with self-efficacy. This process leads to a more severe relapse (Annis, 1986; Rollnick & Heather, 1982).

Opponent Process Theory

Through conditioning, formerly neutral internal and external stimuli become connected with various “a” and “b” states. Re-exposure or re-experiencing these states may increase the individual’s motivation to use drugs following a period of abstinence (Solomon, 1980).

Craving and Loss of Control

Internal and external stimuli associated with drug withdrawal are labelled as craving. Drugs are sought as a way to relieve craving (Ludwig & Wikler, 1974).

Urges and Cravings (Tiffany, 1990, 1992)

Drug use and drug urges and cravings have occurred often enough to be “automatic cognitive processes.” In the abstinent substance abuser, these processes can be triggered by various internal and external stimuli. Relapse may occur if an adequate “action plan” not to use drugs, a non-automatic cognitive process, is impeded or not used. Wise (1988) adds that use of one drug may trigger urges to use another as a result of action in the brain.

Treatment Outcome

Relapse is a central problem in the treatment of addictive behaviour, and a specific problem in the out-patient treatment of the opiate withdrawal syndrome. One study (Unnithan, Gossop, & Strang, 1992) investigated factors associated with relapse among 42 opiate addicts receiving out-patient detoxification treatment at a London drug-dependence clinic. All subjects completed a questionnaire about their social, psychological, and environmental circumstances in the week before interview,
and were interviewed within the first two weeks of the programme. Forty per cent had lapsed to illicit heroin abuse within the previous week. Interpersonal factors and drug-related cues were associated with lapse to opiate use. Most subjects encountered a range of high-risk situations, such as regularly meeting other drug users and being offered drugs, and persistent negative mood states. With continued daily use and physiological dependence, the user's bond to the drug becomes stronger. Drug use, drug seeking, and illegal activity become the dominant activities of the user's life. Psychosocial development is retarded. Those who become dependent during adolescence often fail to complete high school and never develop regular work habits or job skills. With continued dependence, opioid users become impaired marital partners or parents. Daily use does not continue indefinitely. In some cases, an important life change leads to cessation of use. In other cases, pressure from family or friends or other sources prompts entry into a treatment program. In still others, arrest, conviction, and incarceration interrupt the daily use. Sometimes conviction leads to probation with treatment as a requirement of the probation. After treatment or incarceration, the majority of chronic users resume opioid use within six months. The common long-term pattern consists of initial use followed by irregular sequences and varied durations of occasional use, daily use, treatment, abstinence, and incarceration. Remissions enduring for three years or longer followed by relapse are not unusual. In follow-up studies extending from five to more than twenty years after admission to treatment, the percentages of users reported abstinence from opioid drugs have varied from 9 percent to 21 percent (Maddux & Desmond, 1992). A follow-up of opioid users in San Antonio revealed the following different statuses twenty years after first use: 16% were abstinent, 29% were using heroin, 30% were in prison or other institutions, 8% were maintained on methadone, and the remaining 17% were dead or their status was not known.

**Nature of Treatment Outcomes**

Despite the chronic nature of opioid dependence, the primary interest of both professionals and individuals with addictions is still the cure of the disease. A cure is defined as long-term, stable abstinence from all opioids. Abstinence is achieved in 2 phases: a *detoxification phase*, where opioid use is discontinued, generally by
reduction and then termination of the opioid use; and a **phase of relapse prevention**, in which abstinence has to be maintained. Despite great progress in the treatment of opioid dependence in the last 2 decades, outcomes in abstinence-oriented programs remain poor (Paraherakis, Charney, Palacios-Boix, & Gill, 2000).

Treatment outcome research in substance abuse has also reported on lapses and relapses often following immediate contextual factors as well as life events (Rosenberg, 1983; O'Doherty & Davies, 1987; Wills, Vaccaro, & McNamara, 1992; Cerbone & Larison, 2000).

It has been known for many years that addictive disorders tend to run a chronic relapsing course (Rounsaville, 1986). Despite the robust evidence demonstrating the effectiveness of methadone maintenance in the treatment of opiate dependence, many patients seek abstinence-based treatments. A growing body of experts, both nationally and internationally, are calling for much greater provision of such treatments (McKeganey, 2007; Gossop & Moos, 2008). International studies have found that the majority of patients lapse within one month of discharge (Gossop, Green, Phillips, & Bradley, 1989; Broers, Giner, Dumont, & Mino, 2000). Heavier heroin use prior to treatment, greater criminal justice problems, failure to complete treatment and fewer coping mechanisms were all identified as factors which may predict early relapse (Gossop, Stewart, Browne, & Marsden, 2002). Relapse following detoxification-based treatments carries a substantial mortality risk due to accidental overdose, especially for heroin injectors (Strang et al., 2003; National Institute for Health Clinical Excellence, 2007).

Relapse is the primary impediment in the treatment of drug addiction. Even after extended periods of abstinence, exposure to drug associated stimuli, periods of stress, or small amounts of drug can produce robust drug craving and increase the probability of relapse to drug use (Sinha & Li, 2007).

Relapse, or the return to heavy alcohol use following a period of abstinence or moderate use, occurs in many drinkers who have undergone treatment for alcoholism. Traditional alcoholism treatment approaches often conceptualize relapse as an end-state, a negative outcome equivalent to treatment failure. Thus, this perspective considers only a dichotomous treatment outcome, that is, a person is either abstinent
Introduction

or relapsed. In contrast, several models of relapse that are based on social-cognitive or behavioral theories emphasize relapse as a transitional process, a series of events that unfold over time (Annis, 1986; Litman, Eiser, Rawson, & Oppenheim, 1979; Marlatt & Gordon, 1985). Similar course of outcome has been proposed for other addictions also.

Opiate dependence has long been characterized as a chronic relapsing disorder. Consequently, it is not surprising that numerous studies conducted over the past three decades have consistently yielded poor short and long-term outcomes, regarding abstinence from opiates. Detoxification is often the first step in recovery from opiate dependence (Day & Strang, 2011) although the means by which this is achieved varies widely. Patients may be detoxified in either an in-patient or an outpatient setting using non-opiate (e.g. clonidine, loxefidine) or opiate-based methods (e.g. methadone, buprenorphine, naloxone). Despite numerous studies examining long-term opiate abstinence rates, few studies have specifically examined detoxification outcome. Those studies that have examined detoxification completion rates have found a large disparity, most likely due to method of detoxification. Completion rates vary between 21% (Amato, Davoli, Ferri, Ali, 2005) for outpatient detoxification and between 56-82% for in-patient detoxification (Mullen et al., 2010; Gossop, Green, Phillips, & Bradley, 1989). Consistent with these findings, Smyth, Barry, Keenan, & Ducray (2010) found that the vast majority of patients (64%) relapsed within a week of completing in-patient detoxification and that by 3.5 years follow-up this percentage had climbed to 91%. However, it is important to note that these studies have either selected specifically the heroin users or have not differentiated between illicit opioid users and prescription users. It is therefore unknown whether treatment completion rates differ for prescription users, and consequently whether traditional drug dependence treatment methods are effective in this population. In the light of research an understanding of the treatment outcome viz abstinence and relapse, used in the present study would have potential repercussions.

Terms such as “abstinence,” “sobriety,” and “clean” would appear on the surface to have clear meanings, but this is not the case when such terms appear in research reports. In the latter world, as Vaillant (1966) suggests, “abstinence is a relative term.” Abstinence across these studies may vary in meaning to include continuous abstinence from a primary drug over the follow-up period; essential
(virtual, partial, near) abstinence - not having consumed more than a specified amount of alcohol or particular drugs during the follow-up period, e.g., averaging less than 1 drink per month (Dawson, 1996); minimal abstinence - having achieved a minimum period of recovery status during the follow-up period, e.g., having refrained from consuming heroin for a minimum of 3 months within a 2-year follow-up study; point-in-time abstinence - not consuming alcohol or particular drugs at the time of follow-up contact; complete abstinence - continuous abstinence from a primary drug, with no use or asymptomatic use of other drugs during the follow-up period; and involuntary versus voluntary abstinence - presence or absence of enforced abstinence via hospitalization or incarceration (Duvall, Lock, & Brill, 1963).

Recovery rates and recovery prevalence figures obviously vary depending on the abstinence definition used. It is also noteworthy that persons achieving abstinence following addiction may or may not improve the overall quality of their adjustment/functioning, although continued use; changes in status on diagnostic criteria for substance use disorders; and broader measures of global health and quality of life (Babor et al., 1994). The present study uses the criteria of complete abstinence amongst opioid dependents.

Use of Illicit Opioids around the World

In 1994, the United States Office of National Drug Control Policy (USONDCP) reported some key trends in heroin use; more teenagers and young adults and more middle-and upper-middle-class people were using purer heroin, and the proportion of people seeking treatment continued to increase. Around 2000-2001, the number of opium or heroin abusers was estimated at almost 15 million (0.2%) of the world population. In 2002, the main illegal opium producing countries were Afghanistan (76%), Myanmar (18%), Laos (2%) and Colombia (1%). In spite of scant data, prevalence rates for alcohol and illicit drug abuse among doctors seem to be similar to those in the general population. As regards prescription drugs, like benzodiazepines, amphetamines and opioids, however prevalence among doctors is apparently higher than in the general population, due to easier access to these drugs.

In India, the first enquiry into the prevalence of drug addiction of opium and cannabis was made about 125 years ago when the Government of India appointed a Royal Commission in 1893 to go into the circumstances connected with production
and sale of Indian opium (Chopra & Chopra, 1965). Nowadays, drug abuse and drug dependence is showing an escalating trend. The problem has often been associated with the processes of urbanization and modernization. As a developing country, India is struggling with drug abuse and dependence needs to be watched (World Drug Report [WDR], 2009). According to WDR (2009), there were 25, 71, 52582 alcohol users, 8, 22, 88826 alcohol dependents, 82, 28,883 cannabis users and 2,057,221opiate users in India.

**Opioid Dependence in India**

According to the WDR (2010), there were 871,000 uses heroin and 674,000 uses opium in India in 2008. In a survey conducted by the Ministry of Social Justice and Empowerment, in 2001, there were 2 million opium users and 8.7 million cannabis users. However, trends and patterns of narcotics and drugs consumption over the years have shown significant shifts. For instance, while the component of opium use among the drug addicts has been decreasing from 23.1 per cent in 1997 to 9.2 per cent in 2000, the share of cannabis has been increasing from 5.7 per cent to 9.4 per cent. The share of heroin has also witnessed increase from 12.7 in 1997 to 18.5 per cent in 1999. Most interestingly, the component of other psychotropic drugs has increased from 16.2 per cent to 23.2 per cent between 1997 and 2000 (WDR, 2010).

**Opioid Problem in Punjab**

Only a decade ago, Punjab, one of the wealthiest states in India at the time, was heralded as one of the country’s “crown jewels” (Machhan, 2004). In 2004, it was ranked as the “second richest” state in terms of GDP per capita, according to a report by the Confederation of Indian Industry (2004), “with a per capita income of Rs. 25,652 (Machhan, 2004). Now, however, the success story of Punjab’s economy has seemingly come to an end. What was once the fastest-growing state in the country is now one of India’s slowest. During 2011-2012, Punjab’s growth rate slipped to “5.79 per cent – the lowest in the last five years (2007-2012) of the Shiromani Akali Dal and BJP alliance government in Punjab”(Kaur, 2012). The “inherent edge of skilled manpower and entrepreneurial skills” that Punjab had been praised for having ten years ago when there was much excitement over its “vast potential in the manufacturing and service sector, no longer exists” (The Tribune, 2004).
Kalra and Bansal (2012) in a study of 200 patients in a drug de-addiction centre in Punjab, found the majority of patients to be young, married men working either as laborers or farmers in the rural areas of Punjab. Their findings revealed most patients to be males (100%), married (76%), residing in rural areas (85.5%), and working as farmers (42.5%). Whilst most of the patients were perhaps too old to be considered youth, the problem of drug addiction itself can nevertheless be framed as a youth problem. This is because it marks the time around when men are most vulnerable to addiction and most likely to begin taking to drugs. The study found that the average age of patients at the time they began substance abuse was 25 years of age (Kalra & Bansal, 2012).

The Demographics of Drug Addicts in Punjab

The demography of drug addicts in Punjab represents an anomaly when framed within the wider context of drug abuse in India. Upon comparison with the data from other parts of the country, it becomes clear that the situation in Punjab represents an extreme, in terms of the extent of drug addiction as well as an exception in terms of its character. Starting with the extreme nature of the problem, those residing in Punjab are far more likely to be drug addicts than those from most other states in India. For example, the types of drugs that are most popular, vary greatly from region to region. United Nations Office on Drugs and Crime [UNODC], (2004) report detected high levels of alcohol abuse in the northeast states of Nagaland, Arunachal Pradesh and Himachal Pradesh, whereas Manipur, Bihar and Orissa topped the list when it came to cannabis abuse. The extent of drug abuse in Punjab, by comparison, is evident from the fact that for two of India’s most popular drugs, Punjab tops the list. The UN report, based on data from 203 drug treatment centers across India (collected during March 2000 to November 2001), singled out Punjab as the state with the highest levels of abuse of opium as well as propoxyphene, a commonly injected drug. Specifically, it stated that “the highest number of opium users was reported from Punjab (around 56%) followed by Rajasthan (around 11%) and Haryana (around 6%)”. It also mentioned that “the use of propoxyphene was restricted to Punjab and the two north eastern states namely Nagaland and Mizoram” (UNODC, 2004). While the sample of the report was non-random and therefore cannot be generalized for the entire population, it certainly gives an indication of the type, as well as the extent, of drug use in Punjab.
Perhaps more interesting, and possibly helpful in terms of explaining Punjab’s abnormally high levels of drug addiction, are the characteristics of Punjab’s core demography of drug users which differ greatly from most other Indian drug addicts. A comparison with the rest of India will reveal the exceptional nature of the drug phenomenon in Punjab. The report found that, nationwide, users of cannabis “were generally from a rural background” whereas people from an urban background were more likely to report “injecting drug use (IDU) and needle sharing” (UNODC, 2004).

In this case, Punjab represents an anomaly given that IDU is one of the most popular forms of drug abuse among the state’s rural population. UNODC (2012), reported “the IDU phenomenon exists in many smaller towns and even villages of Punjab” (Ambekar, 2012). In Punjab, “the problem is prevalent in middle-class enclaves” (Yardley, 2012) and the rural element of the problem is alarming.

One of the unique aspects of Punjab’s drug addiction problem is that it is predominantly found in the rural context. The extremely skewed distribution of drug users in Punjab across the rural/urban divide becomes especially significant when compared to the distribution of drug users across India. At the national level the, is was reported that “31,159 (76.6%) of drug users were from a rural background and the remaining 9,538 (23.4%) were from an urban background” (UNODC, 2004). This is much in line with the distribution of India’s total population between rural areas (“68.84%”) and urban areas (“31.16%”) (Chandramouli, 2011). However, while the distributions of Punjab’s general population and drug user population are both heavier in rural areas, the difference between the former and latter is staggering, unlike at the national level where the two-distributions fit relatively closely. The argument that a heavy concentration of drug abusers in rural areas is simply a matter of numbers and a result of “the majority of the population residing in the rural areas” (Mohan, Sundaram, & Sharma, 1986) could be posed for India as a whole, yet it cannot be applied with equal confidence to the case of Punjab.

Punjab’s population is distributed somewhat more heavily in urban areas than India’s total population, with a 62.5% rural population and a 37.5% urban population, according to the 2011 census (Chandramouli, 2011). In fact, “Punjab is one of the most highly urbanized states in India” (Kaminsky & Long, 2011), yet its population of drug abusers is largely rural compared to those in other Indian states. Equally significant is the fact that Punjab’s population of drug abusers is much more rural than
its general population. While it is not representative, Kalra and Bansal (2012) carried out a study in a drug de-addiction centre in Punjab and found far more rural drug abusers (85.5%) than urban ones (15.5%) in Punjab. Both, the extremely skewed distribution between Punjab’s rural and urban drug users, and the disturbingly large number of addicts within rural Punjab, suggest that the state’s rural economy and socio-cultural factors specific to the rural community may help explain the state’s drug phenomenon.

During the evaluation of the reasons to start drug abuse, the most common reason which was given by 28% patients was to enhance sexual performance. These people had started taking opioids to enhance sexual performance as per the popular belief among them. Most had started after suggestions from their friends. Other reasons which were cited were pressure of work to ward off fatigue (20.5%); enjoyment/for showing manhood/fun (20%) & peer pressure (9.5%). Another important thing which came into notice was that 9% of patients had started abusing substance because they were prescribed it in medicinal form which shows that the unethical use of medication is very much contributing to increased prevalence of substance abuse. Almost similar findings were seen in another study in adolescents (Naskar, Roy, & Bhattacharya, 2004).

The most common reason for continuation of substance use was given to be avoidance of withdrawal symptoms (44.5%); other reason which was given was to help in preventing fatigue (32%). Other reasons were short term useful effect of drugs, lack of awareness about drug related complications, fear of withdrawal symptoms and not being aware of treatment facility (Priti, Chavan, & Kaur, 2004).

Punjab Opioid Dependence Survey (PODS, 2015) was conducted by Society for Promotion of Youth & Masses, in collaboration with National Drug Dependence Treatment Centre, AIIMS, New Delhi. The findings quoted by Ministry of Social Justice & Empowerment (GOI) & Department of Health, Government of Punjab (2015), reported that out of 3620 opioid dependent individuals, 2414 opioid dependent individuals sought treatment. Based upon the analysis of the data, about 76% opioid dependent individuals in Punjab are in the age group of 18 to 35 years. About 99% are males and 54% are married. A large majority (89%) are literate and have some degree of formal education. Most of them are employed and their major occupations are unskilled workers/labourers (27%); farmers
(21%);& clerical jobs/ businessmen (15%); transport workers (14%) and skilled worker (13%). Findings show that opioid dependence is no longer concentrated only in some, urban areas. In all the surveyed districts, estimates of opioid dependent people run into thousands. In fact, across the state, about 55% of opioid dependent population belongs to rural areas.

While trying to unravel the intricacies of drugs in general, and opioid dependence in particular, the to and fro struggle of an addict into abstinence and relapse, seems intriguing. The alarming data of drug users in Indian and in Punjab guided the present investigation to compare the abstinence and relapsed opioid dependents on Personality, Stress, Coping and Social Support in rural Punjab, with an aim to bring out critical psychological factors that can facilitate or hinder the drug-dependents’ attempts to stay abstinent.

The following chapter will present the relevant review of literature to further enhance our understanding of the study variables.